

ABSTRACT

A blind equalizer structure is devised which employs an efficient filter structure for the convolution operation therein. Associated with this filter structure, two equalizer coefficient estimation (i.e., coefficient adaptation) techniques are also devised, one of which is the basic technique and the other is a reduced-complexity version of the basic technique referred to as the sign technique. The efficient filter structure reduces the amount of multiplications needed for convolution by about a half at the expense of about the same amount of increase in needed additions. Because in digital circuit implementation, multiplications are much more complicated than additions, especially when such operations are carried out on complex entities, the proposed equalizer structure can reduce the complexity of the convolution operation therein by approximately a half, thereby reducing significantly the complexity of the complete equalizer and consequently the complexity of the receiver in a digital transmission system.

09384165-062001